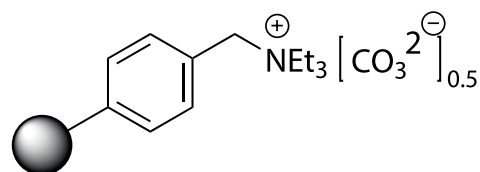


Biotage® MP-Carbonate

Polymer-supported Base



Key Facts



Shelf Life

Capacity
(mmol/g)

BSE/TSE



Scalable

Particle Size
(μm)Thermally &
Mechanically
stableGood
Laboratory
PracticeBulk Density
(g/L)

Specifications

Chemical Name:	Macroporous triethylammonium methylpolystyrene carbonate (0.5% inorganic antistatic agent)
Resin Type:	Macroporous poly(styrene-co-divinylbenzene)
Application:	General base in promoting reactions. Ammonium salt neutralization (TFA/HCL salts). Scavenger of organic acids such as carboxylic acids, boronic acids, HOBt, imidazoles, phenols, N-hydroxysuccinimide.
Typical Scavenging Conditions:	3 equivalents relative to substrate, 0.5–2 h, 20 °C
Compatible Solvents:	DCM (3.0 mL/g), DCE (3.0 mL/g), THF (2.8 mL/g), DMF (2.9 mL/g)

Substrates	MP-Carbonate (equivalents)	Time (h)	% Scavenged
Benzoic acid	3	1	100
Hexanoic acid	4	1	100
Bromobenzoic acid	3	1	100
Phenol	4	1	100
Nitrophenol	2	1	100
2-Allylphenol	6	1	93
2,6-Dimethylphenol	7	1	80

Table 1. Comparative scavenging times of acids in DCM.

MP-Carbonate is also very useful for neutralizing trialkylammonium salts (e.g. hydrochlorides and trifluoroacetates), to generate the free base. Applications include neutralizing reactants, products and ammonium salts of volatile amines (e.g. DIEA or TEA), produced in a chemical transformation. The latter case allows for neutralization and amine removal in the concentration step, circumventing an aqueous workup. In cases where the ammonium salt is insoluble, a catalytic amount of DIEA (0.05–0.1 equivalent) can be added as a soluble transfer base.

Representative Procedures

Neutralization of Amine Hydrochloride Salt

Ephedrine hydrochloride salt (1 equiv.) was converted to the free amine with MP-Carbonate (4 equiv.) in DCM or methanol for one hour. Since ephedrine hydrochloride is not soluble in DCM, a catalytic amount of DIEA (0.05 equivalent) was added as a transfer base and was removed during sample concentration. The resin was removed by filtration and washed twice with DCM. The filtrate was concentrated to give ephedrine in 100% yield (MeOH) and 82% yield (DCM) (NMR purity: 100%).

MP-Carbonate is a macroporous polystyrene anion exchange resin that is a solid-supported equivalent of tetra-alkylammonium carbonate. MP-Carbonate may be used as a general base to quench reactions, neutralize amine hydrochlorides, or to scavenge a variety of acidic molecules such as carboxylic acids or acidic phenols. Removal of excess carboxylic acids or acidic phenols (e.g. phenol or nitrophenol), from solution generally requires 3–4 equivalents of MP-Carbonate. Removal of excess hindered phenol requires larger amounts of resin, typically up to 5-fold excess of MP-Carbonate. Complete removal takes from 30 min to 2 h. Upon completion of the scavenging, the resin is rinsed 3 x with a suitable solvent, (e.g. DCM, THF, or EtOH). Representative acid and phenol scavenging examples are presented in Table 1.

Ordering Information

Part Number	Quantity
800493	3 g
800267	10 g
800268	25 g
800269	100 g
800314	1000 g

References

1. Parlow, J. J.; Naing, W.; South, M. S.; Flynn, D. L. *Tetrahedron Lett.* 1997, 38, 7959.

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